

Bat Beeps - Adaptations



Post Lesson Plan 2

Age: K - 2

Setting: Classroom

Standards: Environment and Ecology: 4.3.4.C(3), 4.6.4.A(3,4,6,10)
Reading, Writing, Speaking, Listening: 1.6.3A(1), D(2-4), E(1),

Objectives: Students will be able to:

- Become familiar with bat behavior and adaptation
- Understand that bats can fly in the dark by using echolocation

Overview: Students will explore a bat's adaptation of echolocation. They model how a bat uses echolocation to collect its food. The teacher will lead students in a discussion comparing our hearing and a bat's hearing.

Vocabulary: echolocation nocturnal roosting

Materials: *illustration overhead of echolocation of bats and soundwaves (page 25)

Procedure:

1. Ask students why bats can fly in the dark (nocturnal) without crashing into things - make concept web.
2. If not suggested, explain that bats have a form of built in radar.
3. Explain how our ears sense sound waves in the air (show illustration).
4. Explain how our ears can only sense certain levels of sound whereas bats can sense much higher frequencies.
5. Explain that bats produce high frequency sounds and then listen for the echo of these sounds to judge where obstacles or prey are (show illustration on page 25).
6. Go to the gym (or other large empty space) and simulate the echolocation of bats by setting up the following groups (this is similar to the activity on page 26):

bats - blindfold students and place them in a corner representing their roost – they repeat the word “bat” when they move

wall guards - watch so bats don't hit the walls - they repeat the word “wall”

obstacles - are stationary and repeat the word that describes themselves e.g. “tree”

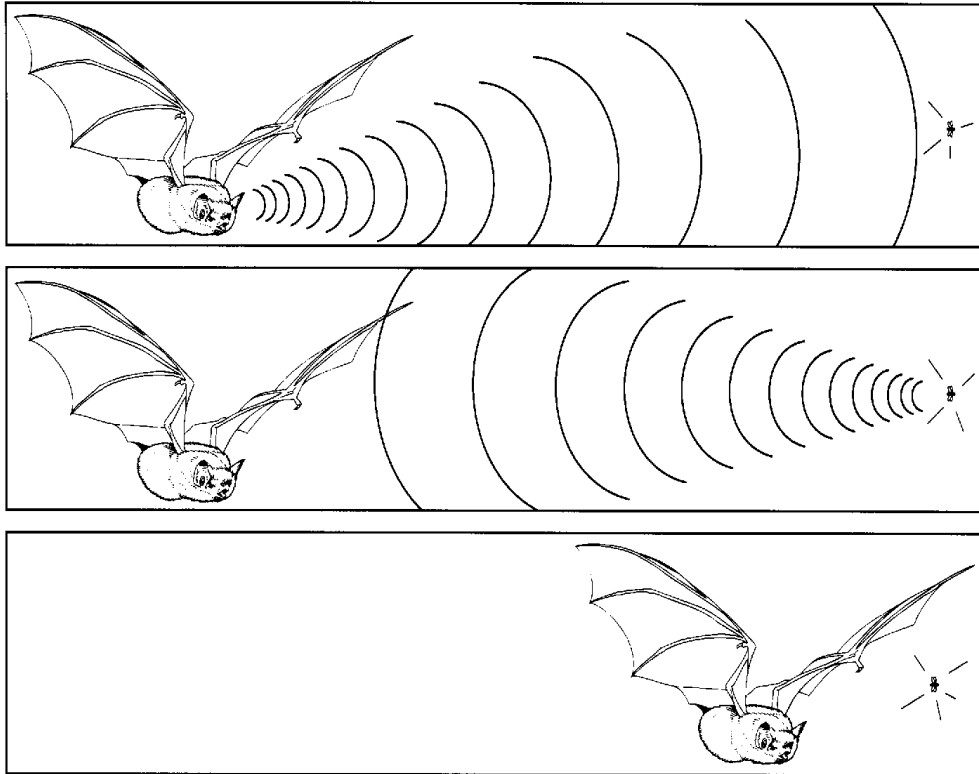
prey - move around slowly and repeat the word that describes themselves e.g. “moth”

7. The bats must go out from their roost and by listening to the clues they hear, capture a prey and return to the roost without hitting anything. One bat should stay in roost (saying “roost”) to help the other bats find their way back.
8. Review echolocation by listening to what the bats experienced.

Assessment: The teacher will ask students to list the similarities and differences of human hearing and bat echolocation.

Note: Take advantage of any area in the school or nearby where your children can experience echoes.

How Do Bats Fly in the Dark?



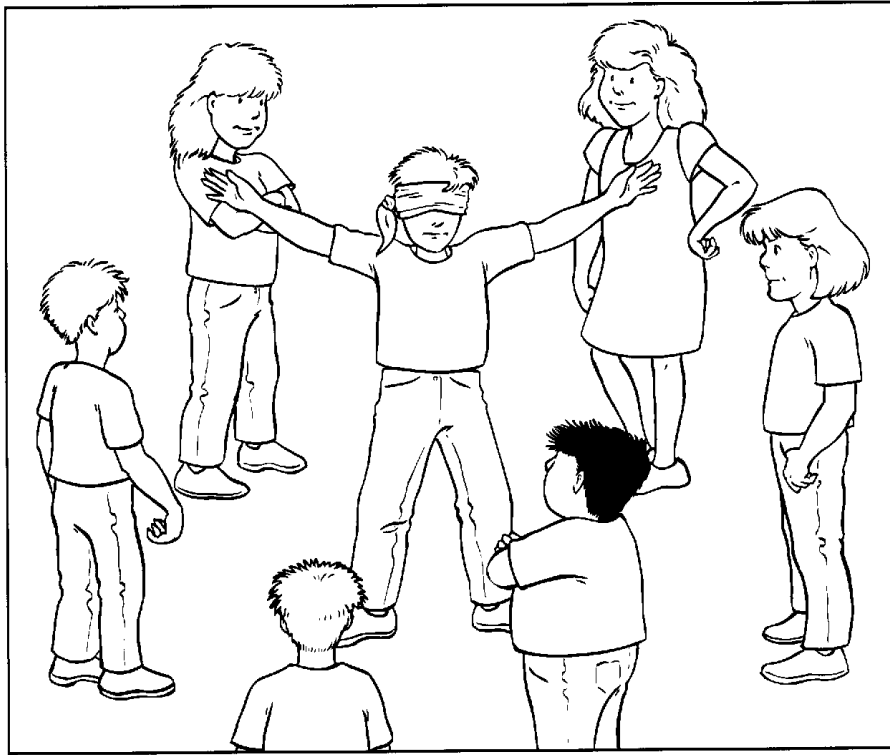
Insect-eating bats go out at dusk or after dark to find food.
They use echoes to help them find their food.
The echoes help them find their way back home too.
This is called echolocation.

The bat makes squeaks and clicks.
The sounds bounce off of trees, insects, and other things.
The bat can hear the sound return with its large ears.
Quick as a wink the bat find out where the object is.
The bat can tell how big it is and how far away it is.
The bat can tell which direction to fly to get to it.

How does a bat know if the object is something to eat?
Scientists still don't know how the bat can tell this.

Note: This game is best played outside on the grass or in a large empty room such as a gym or cafeteria.

"Catch the Insect"



Have children make a circle. The children in the circle are obstacles in the environment (trees, rocks, buildings, etc.). When the bat comes close to one of the "obstacles," the child directly in front of the bat and the child on either side say "stop" to warn the "bat" to move in a different direction.

One or two children inside the circle are the "insects." They call out "insect" until one of the insects is caught by the bat.

One child is the "bat" and is in the center of the circle also. This bat is blindfolded. The bat moves around the circle trying to locate an "insect" by sound, moving away from obstacles when he/she hears the warning "stop." You may want to set a time limit in which the bat has to catch one of the insects.

When an insect has been caught, select a new group of insects and a new bat to continue play.